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AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS

done at Geneva on 20 March 1958

Addendum 4: Regulation No. 5 to be annexed to the Agreement

Revision 2

Incorporating Supplement 1 to the 02 series of amendments which entered into force on 28 February 1990

UNIFORM PROVISIONS FOR THE APPROVAL OF MOTOR VEHICLE "SEALED BEAM" HEADLAMPS (SB) EMITTING A EUROPEAN ASYMMETRICAL PASSING BEAM OR A DRIVING BEAM OF BOTH

UNITED NATIONS

Regulation No. 5

UNIFORM PROVISIONS FOR THE APPROVAL OF MOTOR VEHICLE "SEALED BEAM" HEADLAMPS (SB) EMITTING A EUROPEAN ASYMMETRICAL PASSING BEAM OR A DRIVING BEAM OR BOTH

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READY

Regulation No. 5

UNIFORM PROVISIONS FOR THE APPROVAL OF MOTOR VEHICLE "SEALED BEAM" HEADLAMPS (SB) EMITTING A EUROPEAN ASYMMETRICAL PASSING BEAM OR A DRIVING BEAM OR BOTH

1. DEFINITION

By "sealed beam" headlamp unit (hereinafter termed "SB unit"), is meant a headlamp unit whose components, comprising a reflector system, a lens system and one or more electrical light sources are all parts of an integral whole which has been sealed in the course of manufacture and which cannot be dismantled without rendering the unit completely unusable.

2. DIFFERENT TYPES OF SB UNITS

2.1 SB units are considered to be of different types if they differ in one or more of the following essentials of form or characteristics:

2.1.1 Trade name or mark;

2.1.2 Characteristics of the optical system;

2.1.3 Inclusion of additional components capable of altering the optical effects by reflection, refraction, absorption and/or deformation during operation;

2.1.4 The rated voltage (the same approval number may be granted if the only change is of rated voltage);

2.1.5 The rated wattage;

2.1.6 The shape of the filament(s);

2.1.7 The kind of beam produced (passing beam, driving beam or both);

2.1.8 Suitability for right-hand or left-hand traffic or for both traffic systems;

2.1.9 The colour of the light emitted.

3. APPLICATION FOR APPROVAL

3.1 The application for approval shall be submitted by the holder of the trade name or mark or by his duly accredited representative. It shall specify:

3.1.1 Whether the SB unit is intended to provide both a passing beam and a driving beam, or only one of these beams;

3.1.2 Whether, if the headlamp is intended to provide a passing beam, it is designed for both left-hand and right-hand traffic or for either left-hand or right-hand traffic only;

3.1.3 Where applicable, that it is designed for agricultural or forest tractors and other slow-moving vehicles (see annex 1).

3.2 Every application for approval shall be accompanied by:

3.2.1 Drawings in triplicate, sufficiently detailed to permit identification of the type and giving a front view of the unit (with, if applicable, details of the lens moulding) and a cross-section; also the filament(s) and shield(s) shall be shown on the drawings at a scale of 2 : 1 both in front view and in side view; the drawing must show the position intended for the approval number and the additional symbols in relation to the circle of the approval mark;

3.2.2 Brief technical description;

3.2.3 Samples as follows:

3.2.3.1 For approval of an SB unit to emit uncoloured light: five samples;

3.2.3.2 For approval of a unit to emit coloured light: one coloured-light sample, and five uncoloured-light samples differing from the type submitted only in that the glass is not coloured.

3.3 In the case of SB units differing only in that they are designed to emit coloured light from a type designed to emit uncoloured light and which has previously satisfied the tests in paragraphs 6, 7 and 8 below, it will be sufficient to submit one sample of the coloured-light type to undergo only the tests given in paragraph 9.

4. MARKINGS 1/

4.1 SB units submitted for approval shall bear the trade name or mark of the applicant.

1/ In the case of SB units designed to meet the requirements of traffic moving on one side of the road only (either right or left), it is further recommended that the area which can be occulted to prevent discomfort to users in a country where traffic moves on the side of the road opposite to that of the country for which the SB unit was designed should be outlined indelibly on the front glass. This marking is not necessary, however, where the area is clearly apparent from the design.

4.2 They shall comprise on the front glass, a space of sufficient size for the approval mark and the additional symbols provided for in paragrapah 5 below; the space must be shown on the drawings referred to in paragraph 3.2.1 above.

4.3 They shall carry, either on the front glass or on the body, the values of the rated voltage and of the rated wattage of the driving beam filament, followed by that of the rated wattage of the passing beam filament, as applicable.

4.4 In the case of SB units designed to meet the requirements both of countries where the traffic keeps to the right and of those where the traffic keeps to the left, the two settings of the unit on the vehicle shall be marked by the letters "R/D" for the position for right-hand traffic and the letters "L/G" for the position for left-hand traffic.

4.5 The trade names or marks and markings provided for under this paragraph 4 shall be clearly legible and indelible.

5. APPROVAL

5.1 General

5.1.1 If all the headlamp type samples submitted in accordance with paragraph 3 above satisfy the provisions of this Regulation, approval shall be granted.

5.1.2 Where grouped, combined or reciprocally incorporated lamps have been found to comply with the requirements of several Regulations annexed to the 1958 Agreement, a single international approval mark may be applied provided that such lamps are not grouped, combined or reciprocally incorporated with a lamp or lamps not satisfying any one of these Regulations.

5.1.3 An approval number shall be assigned to each type approved. Its first two digits (at present 02 corresponding to the 02 series of amendments which entered into force on 6 March 1988) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another type of grouped, combined or reciprocally incorporated lamps covered by this Regulation.

5.1.4 Notice of approval or of extension or refusal of approval of a type of headlamp pursuant to this Regulation shall be communicated to the Parties to the 1958 Agreement applying this Regulation, by means of a form conforming to the model shown in annex 1 to this Regulation.

5.1.5 Every headlamp conforming to a type approved under this Regulation shall bear, in the space referred to in paragraph 4.2 above, in addition to the marking prescribed in paragraph 4.1, an approval mark as described in paragraphs 5.2 and 5.3 below.

5.2 Composition of the approval mark

The approval mark shall consist of:

5.2.1 An international approval marking, comprising:

5.2.1.1 A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval; 2/

5.2.1.2 The approval number prescribed in paragraph 5.1.3 above.

5.2.2 The following additional symbol (or symbols):

5.2.2.1 On SB headlamps meeting left-hand traffic requirements only, a horizontal arrow shall be placed under the circle, pointing to the right of an observer facing the SB headlamp, i.e. to the side of the road on which the traffic moves;

5.2.2.2 On SB headlamps designed to meet the requirements of both traffic systems by means of an appropriate adjustment of the setting of the headlamp, a horizontal arrow with a head on each end, the heads pointing respectively to the left and to the right shall be placed under the circle;

5.2.2.3 On headlamps meeting the requirements of this Regulation in respect of the passing beam only, the letters "SC" shall be placed above the circle;

5.2.2.4 On headlamps meeting the requirements of this Regulation in respect of the driving beam only, the letters "SR" shall be placed above the circle;

2/ 1 for the Federal Republic of Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for Czechoslovakia, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 for the German Democratic Republic, 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal and 22 for the Union of Soviet Socialist Republics. Subsequent numbers will be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated to the Contracting Parties to the Agreement by the Secretary-General of the United Nations.

5.2.2.5 On headlamps meeting the requirements of this Regulation in respect of both the passing beam and the driving beam, the letters "SCR" shall be placed above the circle;

5.2.2.6 The two digits of the approval number which indicate the series of amendments in force at the time of issue of the approval and, if necessary, the required arrow may be marked close to the above additional symbols;

5.2.2.7 In every case the relevant operating mode during the test procedure according to paragraph 1.1.1.1 of annex 5 and the allowed voltage(s) according to paragraph 1.1.1.2 of annex 5 shall be stipulated on the approval certificates and on the notice transmitted to the countries which are Contracting Parties to the Agreement and which apply this Regulation.

In the corresponding cases the device shall be marked as follows:

On units meeting the requirements of this Regulation which are so designed that the filament of the passing beam shall not be lit simultaneously with that of any other lighting function with which it may be reciprocally incorporated:

An oblique stroke (/) shall be placed behind the passing lamp symbol in the approval mark;

5.2.2.8 The marks and symbols referred to in paragraphs 5.2.1 and 5.2.2 above shall be clearly legible and indelible even when the headlamp is fitted in the vehicle.

5.3 Arrangement of the approval mark

5.3.1 Independent lamps

Annex 4, figures 1 to 7, to this Regulation gives examples of arrangements of the approval mark with the above-mentioned additional symbols.

5.3.2 Grouped, combined or reciprocally incorporated lamps

5.3.2.1 Where grouped, combined or reciprocally incorporated lamps have been found to comply with the requirements of several Regulations, a single international approval mark may be affixed, consisting of a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted the approval, and an approval number. This approval mark may be located anywhere on the grouped, combined or reciprocally incorporated lamps, provided that:

5.3.2.1.1 It is visible after their installation;

5.3.2.1.2 No part of the grouped, combined or reciprocally incorporated lamps that transmits light can be removed without at the same time removing the approval mark.

5.3.2.2 The identification symbol for each lamp appropriate to each Regulation under which approval has been granted, together with the corresponding series of amendments incorporating the most recent major technical amendments to the Regulation at the time of issue of the approval and, if necessary, the required arrow shall be marked:

5.3.2.2.1 Either on the appropriate light-emitting surface,

5.3.2.2.2 Or in a group, in such a way that each of the grouped, combined or reciprocally incorporated lamps may be clearly identified (see three possible examples in annex 4).

5.3.2.3 The size of the components of a single approval mark shall not be less than the minimum size required for the smallest of the individual marks by the Regulation under which approval has been granted.

5.3.2.4 An approval number shall be assigned to each type approved. The same Contracting Party may not assign the same number to another type of grouped, combined or reciprocally incorporated lamps covered by this Regulation.

5.3.2.5 Annex 4, figure 9, to this Regulation gives examples of arrangements of approval marks for grouped, combined or reciprocally incorporated lamps with all the above-mentioned additional symbols.

5.3.3 <u>Lamps reciprocally incorporated with other lamps, of which the lens may also be used for other types of headlamps</u>

The provisions laid down in paragraph 5.3.2 above are applicable.

5.3.3.1 In addition, where the same lens is used, the latter may bear the different approval marks relating to the different types of headlamps or units of lamps, provided that the main body of the headlamp, even if it cannot be separated from the lens, also comprises the space described in paragraph 5.2 above and bears the approval mark of the actual functions.

If different types of headlamps comprise the same main body, the latter may bear the different approval marks.

5.3.3.2 Annex 4, figure 9, to this Regulation gives examples of approval marks relating to the above case.

6. GENERAL SPECIFICATIONS

6.1 Each sample shall conform to the specifications set forth in this paragraph 6 and in paragraphs 7 and 8 below, and, if necessary, paragraph 9.

6.2 SB units shall be so made as to retain their prescribed photometric characteristics and to remain in good working order when in normal use, despite the vibration to which they may be subjected.

6.2.1 Headlamps shall be fitted with a device enabling them to be so adjusted on the vehicle as to comply with the rules applicable to them. Such a device need not be fitted on SB headlamp inserts if the use of such inserts is confined to vehicles on which the headlamp setting can be adjusted by other means. Where an SB headlamp providing a driving beam and an SB headlamp providing a passing beam are assembled as exchangeable subunits to form a composite unit the adjusting device shall enable each SB unit individually to be duly adjusted.

6.2.2 However, this will not apply to headlamp assemblies whose reflectors are indivisible. For this type of assembly the requirements of paragraph 8 of this Regulation shall apply. In the case where more than one light source is used to provide the main beam the combined main-beam functions will be used to determine the maximum value of the illumination (E_m).

6.3 The terminal shall only be in electrical connection with the appropriate filament or filaments and shall be robust and firmly fixed to the unit.

6.4 If the units are circular they shall provide all the physical features and electrical connections shown in one of the plates SB_2 - SB_7 in annex 4 and shall be made to the dimensions in that plate.

6.5 SB units designed to meet the requirements both of countries where the traffic keeps to the right and of those where the traffic keeps to the left, may be adapted for traffic on a given side of the road either by an appropriate initial setting when fitted on the vehicle, or by selective setting by the user. Such initial or selective setting may consist, for example, of fixing the angular setting of the unit on the vehicle. In all cases, only two precise setting positions, one for right-hand and one for left-hand traffic, shall be possible, and the design shall preclude inadvertent shifting of the unit from the one position to the other or its setting in an intermediate position. Conformity with the requirements of this paragraph shall be verified visually and, where necessary, by a test fitting.

6.6 Complementary tests shall be done according to the requirements of annex 5 to ensure that in use there is no excessive change in photometric performance.

7. RATED VALUES

7.1 The values of rated voltage are: 6, 12 and 24 volts. 3/

7.2 The power consumed at the test voltage by any submitted SB unit shall not exceed the rated wattage marked on the unit, by more than the percentage specified in table 1. No lower limit is specified for the tolerance on wattage but the minimum illumination values specified in table 2 of paragraph 8.8 must be obtained.

Table 1

		Circular units of 180 mm diameter		Circular units of 145 mm diameter	
Rated voltage		6	12	6	12
Test voltage		6	12	6	12
		Rated wattage and permitted tolerance			
Double filaments 4/	Driving beam	60 + 0%		37.5 + 0%	
	Passing beam	50 + 0%		50 + 0%	
Driving beam filament only		75 + 0%		50 + 0%	
Passing beam filament only		50 + 0%		50 + 0%	

8. ILLUMINATION 5/

8.1 SB units shall be so made as to give adequate illumination without dazzle for the passing beam, and good illumination for the driving beam.

3/ 24-volt units are under consideration.

4/ In the case of SB units with double filaments, the samples may be submitted for approval for the two functions or for the passing beam only.

5/ All the photometric measurements shall be carried out at the test voltage given in paragraph 7.

8.2 The illumination produced by the unit shall be checked on a vertical screen set at a distance of 25 m in front of the unit and at right angles to its axis (see annex 4, plates SB_{8a} and SB_{8b}).

8.3 The passing beam must produce a sufficiently sharp "cut-off" to permit satisfactory alignment with its aid. The "cut-off" must be a horizontal line on the side opposite to the direction of the traffic for which the unit is intended; on the other side it should be horizontal or within an angle of 15° above the horizontal.

8.4 The SB unit shall be aimed so that on passing beam:

8.4.1 In the case of units designed to meet the requirements of right-hand traffic, the "cut-off" on the left half of the screen 6/ is horizontal and, in the case of units designed to meet the requirements of left-hand traffic, the "cut-off" on the right half of the screen is horizontal;

8.4.2 This horizontal part of the "cut-off" is situated, on the screen, 25 cm below the level of the horizontal plane passing through the focus of the unit (see annex 4, plates SB_{8a} and SB_{8b});

8.4.3 The screen is in the position indicated in annex 4, plates SB_{8a} and SB_{8b}. 7/

8.5 When so aimed, the unit need, if its approval is sought solely for a passing beam, 8/ meet only the requirements referred to in paragraph 8.8 below; if it is intended to provide both a passing beam and a driving beam it shall meet the requirements referred to in paragraphs 8.8 and 8.9.

6/ The test screen must be sufficiently wide to allow examination of the "cut-off" over a range of at least 5° from the line vv.

7/ If, in the case of a unit designed to meet the requirements of this Regulation with respect to the passing beam only, the focal axis diverges appreciably in from the general direction of the beam, lateral adjustment shall be effected in the manner which best satisfies the requirements for illumination at points 75 and B 50.

8/ A unit designed to emit a passing beam may incorporate a driving beam not complying with the specification.

8.6 Where an SB unit so aimed does not meet the requirements referred to in paragraphs 8.8 and 8.9 below, its alignment may be changed, provided that the axis of the beam is not laterally displaced by more than 1° (= 44 cm) to the right or left. 9/ To facilitate alignment by means of the "cut-off", the unit may be partially occulted in order to sharpen the "cut-off".

8.7 In the case of an SB unit providing a driving beam only, it shall be so aimed that the area of maximum illumination is centred on the point of intersection HV of the lines hh and vv; such a unit need meet only the requirements referred to in paragraph 8.9.

8.8 The illumination produced on the screen by the passing beam shall meet the following requirements:

Table 2

Point on measuring screen		Required illumination in lux	
SB units for right-hand traffic	SB units for left-hand traffic	Minimum	Maximum
B 50 L 75 R	B 50 R 75 L	- 6	0.3 -
50 R 25 L	50 L 25 R	6 1.5	- -
25 R	25 L	1.5	-
Every point in Zone III		-	0.7
" " " " IV		2	-
" " " " I		-	20

8.8.1 There shall be no lateral variations detrimental to good visibility in any of the zones I, II, III and IV;

8.8.2 SB units designed to meet the requirements of both right-hand and left-hand traffic must, in each of the two setting positions, meet the requirements set forth above for the corresponding direction of traffic.

9/ The limit of realignment of 1° towards the right or left is not incompatible with vertical realignment, which is only limited by the conditions laid down in paragraph 8.9.

8.9 In the case of an SB unit designed to provide a driving beam and a passing beam, measurements of the illumination produced on the screen by the driving beam shall be taken with the same unit alignment and voltage as for measurements under paragraph 8.8 above;

8.10 The illumination produced on the screen by the driving beam shall meet the following requirements:

8.10.1 The point of intersection HV of the line hh and vv shall be situated within the isolux 90% of maximum illumination. This maximum value shall not be less than 32 lux;

8.10.2 Starting from point HV, horizontally to the right and left, illumination shall be not less than 16 lux up to a distance of 1.125 metres, and not less than 4 lux up to a distance of 2.25 metres.

8.11 The screen illumination values mentioned in paragraphs 8.8 and 8.9 above shall be measured by means of a photoelectric cell, the effective area of which shall be contained within a square of 65 mm side.

9. COLOUR

The light emitted shall be uncoloured or selective yellow. In the latter case the dominant wavelength must be between 5,750 and 5,850 Ångstrom units, the purity factor shall be between 0.90 and 0.98 and the illumination produced on the screen by the passing beam must meet the requirements of Table 2 with all the figures multipled by a factor of 0.84. 10/

10. REMARK CONCERNING COLOUR

Any approval under this Regulation which is granted by virtue of paragraph 9 above for a type of SB unit emitting uncoloured light or selective yellow light, does not prevent the Contracting Parties from prohibiting, on the vehicles which they register, SB units emitting either uncoloured or selective yellow light, according to article 3 of the Agreement to which this Regulation is attached.

10/ These specifications correspond to the following trichromatic co-ordinates: selective yellow (yellow within the meaning of annex 5, appendix, of the 1968 Convention on Road Traffic)

Limit towards red	$y \geq 0.138 + 0.580x$
Limit towards green	$y \leq 1.29x - 0.100$
Limit towards white	$y \geq -x + 0.966$
Limit towards spectrum edge	$y \leqslant -x + 0.992$

11. GAUGING OF DISCOMFORT

The discomfort caused by the passing beam of SB units shall be gauged. 11/

12. CONFORMITY OF PRODUCTION

Every SB unit bearing an approval mark as prescribed under this Regulation shall conform to the approved type and meet the requirements set forth above. Compliance with this provision shall be verified in accordance with annex 3 to this Regulation and to paragraph 3 of annex 5 of this Regulation.

13. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

13.1 The approval granted in respect of an SB unit pursuant to this Regulation may be withdrawn if the requirements set forth above are not met, or if a unit bearing the approval mark does not conform to the type approved.

13.2 If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a communication form conforming to the model in annex 2 to this Regulation.

14. MODIFICATIONS OF THE TYPE OF SEALED BEAM HEADLAMP UNIT (SB UNIT) AND EXTENSION OF APPROVAL

14.1 Every modification of the type of sealed beam headlamp unit (SB unit) shall be notified to the administrative department which approved the type of sealed beam headlamp unit (SB unit). The department may then either:

14.1.1 Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the sealed beam headlamp unit (SB unit) still complies with the requirements; or

14.1.2 Require a further test report from the technical service responsible for conducting the tests.

14.2 Confirmation or refusal of approval, specifying the alterations, shall be communicated by the procedure specified in paragraph 5.2 above to the Parties to the Agreement applying this Regulation.

14.3 The competent authority issuing the extension of approval shall assign a series number to each communication form drawn up for such an extension and inform thereof the other parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 2 to this Regulation.

11/ This requirement will be the subject of a recommendation for the benefit of administrations.

15. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a device approved in accordance with this Regulation he shall so inform the authority which granted the approval. Upon receiving the relevant communication that authority shall inform thereof the other Parties to the Agreement applying this Regulation by means of a communication form conforming to the model in annex 2 to this Regulation.

16. TRANSITIONAL PROVISIONS

16.1 As from the date of entry into force of the 02 series of amendments to this Regulation no Contracting Party applying it shall refuse to grant approvals under this Regulation as amended by the 02 series of amendments.

16.2 As from 24 months after the date of entry into force mentioned in paragraph 16.1 above, Contracting Parties applying this Regulation shall grant approvals only if the type of headlamp corresponds to the requirements of this Regulation as amended by the 02 series of amendments.

16.3 Existing approvals granted under this Regulation before the date mentioned in paragraph 16.2 above shall remain valid.

However, Contracting Parties applying this Regulation may prohibit the fitting of devices which do not meet the requirements of this Regulation as amended by the 02 series of amendments:

16.3.1 On vehicles for which type approval or individual approval is granted more than 24 months after the date of entry into force mentioned in paragraph 16.1 above;

16.3.2 On vehicles first registered more than five years after the date of entry into force mentioned in paragraph 16.1 above.

17. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

The Parties to the 1958 Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or refusal or, extension or withdrawal of approval, issued in other countries, are to be sent.

Annex 1

SB UNITS FOR AGRICULTURAL OR FOREST TRACTORS AND OTHER SLOW-MOVING VEHICLES

1. The provisions of this Regulation shall also apply to the approval of special SB units for agricultural or forest tractors and other slow-moving vehicles, such units being intended to provide both a driving beam and a passing beam and having a diameter */ of less than 160 mm with the following modifications:

1.1 The minimum requirements for illumination laid down in paragraph 8.8. shall be reduced in the ratio

$$\frac{(D - 45)^2}{(160 - 45)}$$

subject to the following absolute lower limits:

3 lux at either point 75R or point 75L;

5 lux at either point 50R or point 50L;

1.5 lux in Zone IV;

1.2 Instead of the symbols provided for in paragraph 5.3.2 of the Regulation, the unit shall be marked with the letters "SM" in an inverted triangle.

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*/ If the projected area of the reflector is not circular, the diameter shall be that of a circle having the same area as the projected area of the apparent useful surface of the reflector.

Annex 2

(maximum format: A4 (210 x 297 mm)

COMMUNICATION

issued by: Name of administration:

.....

.....

.....

E ... 1/

concerning: 2/ APPROVAL GRANTED

APPROVAL EXTENDED

APPROVAL REFUSED

APPROVAL WITHDRAWN

PRODUCTION DEFINITELY DISCONTINUED

of a type of sealed beam headlamp unit (SB unit) pursuant to Regulation No. 5

Approval No. ... Extension No. .....

1. SB unit submitted for approval as type SCR, SCR→ ←SCR→ SC SC→ ←SC→

SR SM SM→ ←SM→ SC/R, SC/R→ ←SC/R→ SC/, SC/→ ←SC/→ 2/

Emitting light uncoloured/selective yellow. 2/

Rated voltage .....

Rated wattage .....

2. The passing lamp filament may/may not 2/ be lit simultaneously with the driving lamp filament and/or another reciprocally incorporated lamp

3. Trade name or mark .....

4. Manufacturer's name and address .....

5. If applicable, name and address of manufacturer's representative .....

.....

6. Submitted for approval on .....

7. Technical service responsible for conducting approval tests .....

8. Date of report issued by that service .....

9. Number of report issued by that service .....

10. Approval granted/refused/extended/withdrawn 2/

11. Reason(s) of extension (if applicable) .....

12. Maximum intensity (in lux) of the driving beam at 25 m from the unit .....

13. Extension of approval to headlamps emitting uncoloured/selective-yellow light 2/ .....

13.1. Test laboratory .....

13.2. Date and number of laboratory report .....

13.3. Date of extension of the approval .....

14. Place .....

15. Date .....

16. Signature .....

17. The attached drawing, No. ....., shows the unit in front view (with, if applicable, details of the lens moulding) and a cross-section.

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply.

Annex 3

VERIFICATION OF CONFORMITY OF PRODUCTION OF HEADLAMPS ("SEALED BEAM") EMITTING AN ASYMMETRICAL PASSING BEAM OR A DRIVING BEAM OR BOTH

1. Headlamps bearing an approval mark shall conform to the approved type.

2. The requirement of conformity shall be deemed satisfied from a mechanical and geometrical standpoint if the discrepancies do not exceed inevitable manufacturing errors.

3. As regards photometric performance the conformity of headlamps of the series will not be contested if, during photometric tests of any headlamp, selected at random and equipped with a standard (reference) lamp,

3.1 none of the values measured deviates unfavourably by more than 20% from the prescribed value (for values B50R or L and zone III, the maximum unfavourable deviation may be 0.2 lux (B50R or L), or 0.3 lux (zone III);

3.2 or if,

3.2.1 for the passing beam, the prescribed values are met at HV (with a tolerance of 0.2 lux) and at least one point of the area delimited on the measuring screen (at 25 m) by a circle 15 cm in radius around points B50R or L (with a tolerance of 0.1 lux), 75R or L, 50R or L, 25R or L, and in the entire area of zone IV which is not more than 22.5 cm above line 25R and 25L,

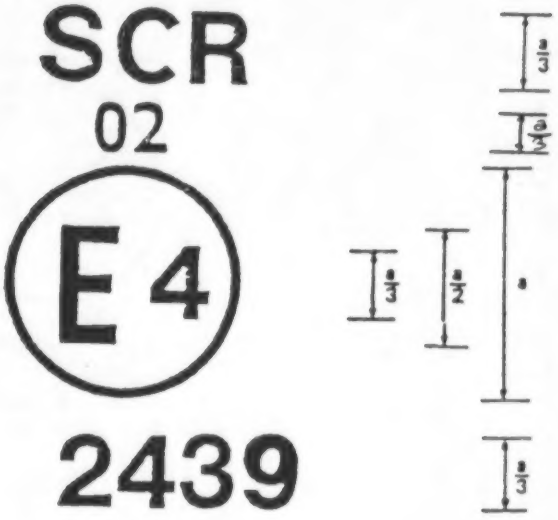
3.2.2 and if, for the driving beam, HV being situated within the isolux 0.75 E_{max}, a tolerance of 20% is observed for the photometric values.

4. If the results of the tests described in paragraph 3 above do not satisfy the requirements, the tests for the headlamp in question shall be repeated with another standard (reference) lamp.

5. See also annex 5, paragraph 3.

Annex 4

ARRANGEMENTS OF APPROVAL MARKS



a = 12 mm min.

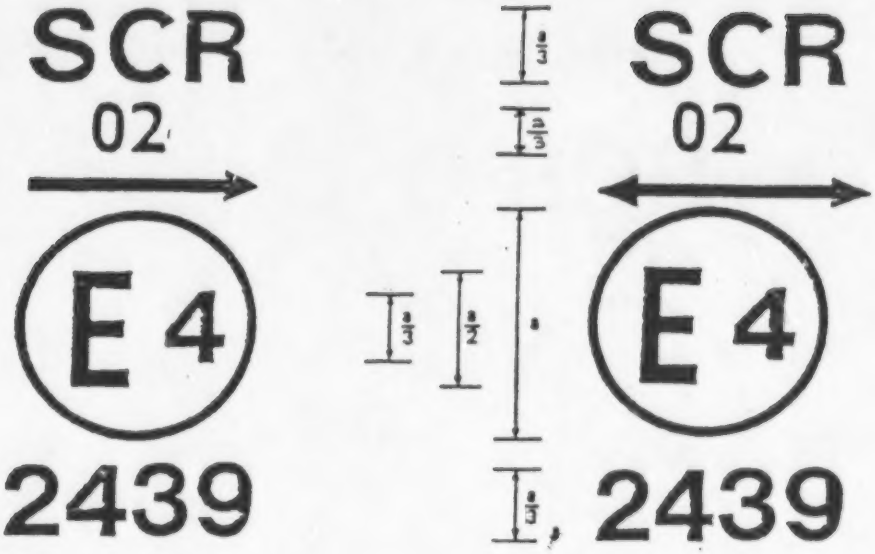
Figure 1

The SB headlamp bearing the approval marking shown above is a headlamp meeting the requirements of this Regulation in respect of both the driving beam and the passing beam, and which is designed for right-hand traffic only.

NOTE: The approval number and the additional symbol(s) shall be placed close to the circle and either above or below the letter "E", or to the right or left of that letter. The digits of the approval number shall be on the same side of the letter "E" and face the same direction.

The additional symbol(s) must be diametrically opposed to the approval number.

The use of Roman numerals as approval numbers should be avoided so as to prevent any confusion with other symbols.



a = 12 mm min.

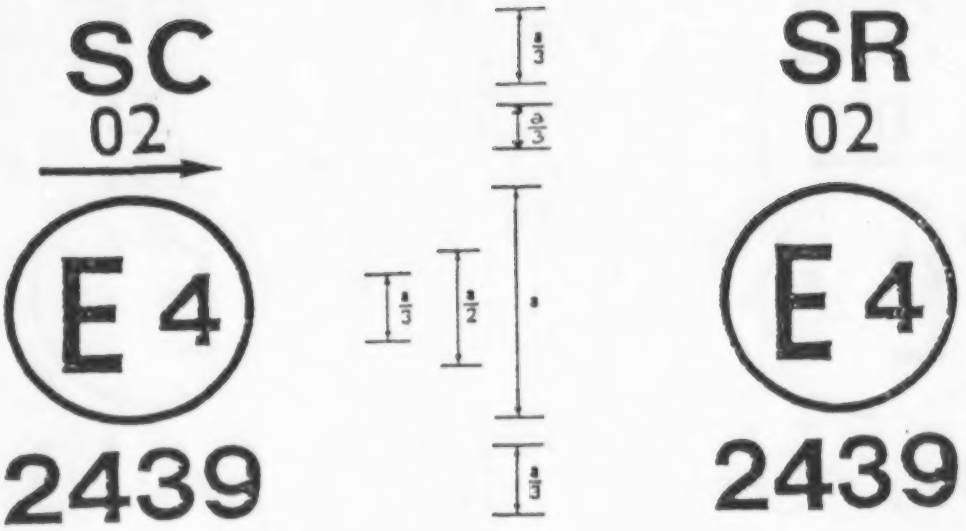
Figure 2

Figure 3

The SB headlamp bearing the approval marking shown above is a headlamp meeting the requirements of this Regulation with respect to both the passing beam and the driving beam and designed:

For left-hand traffic only.

For both traffic systems, by means of an adjustment as desired of the headlamp.



a = 12 mm min.

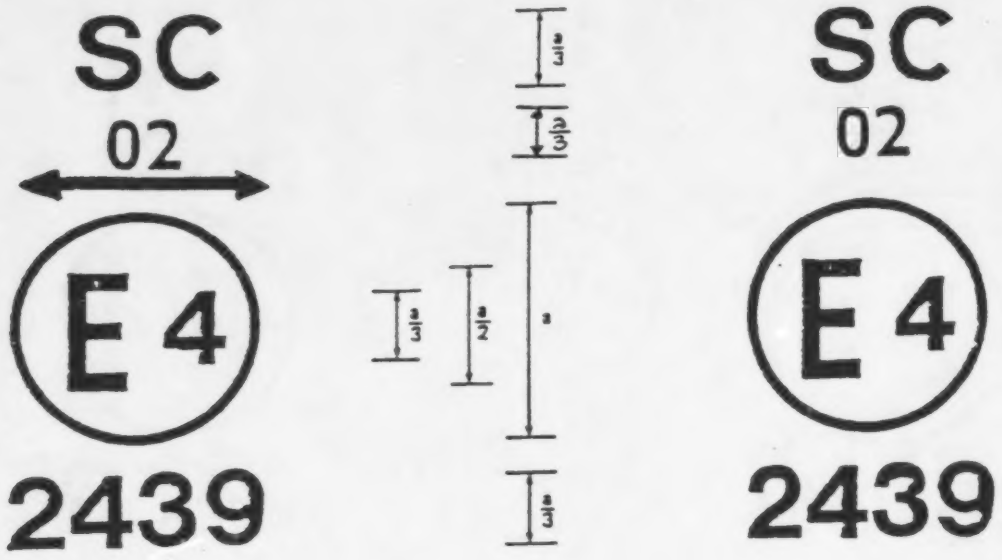
Figure 4

Figure 5

The SB headlamp bearing the approval mark shown above is a headlamp meeting the requirements of this Regulation with respect to the passing beam only, and designed:

For both traffic systems.

For right-hand traffic only.



a = 12 mm min.

Figure 6

Figure 7

The SB headlamp bearing the approval mark shown above is a headlamp meeting the requirements of this Regulation:

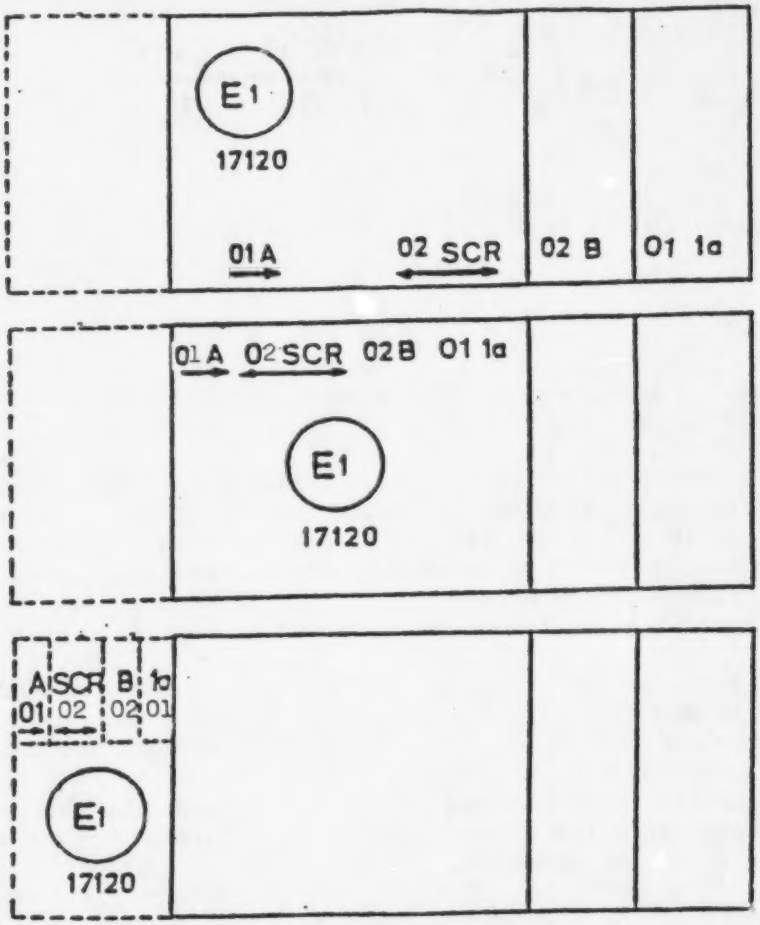
With respect to the passing beam only, and designed for left-hand traffic only.

With respect to the driving beam only.

Examples of possible markings for grouped lamps situated on the front of a vehicle

Figure 8

The vertical and horizontal lines schematize the shape of the light-signalling device. These are not part of the approval mark



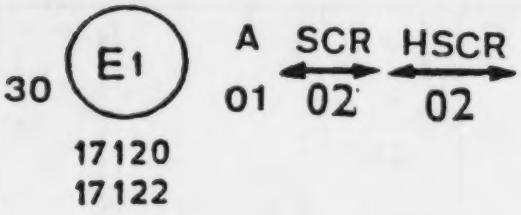
NOTE: The three examples shown above correspond to a lighting device bearing an approval mark relating to:

A front position lamp approved in accordance with the 01 series of amendments to Regulation No. 7;
A headlamp meeting the requirements of this Regulation with respect to the passing beam and to the driving beam, and designed for both traffic systems;
A front fog lamp approved in accordance with the 02 series of amendments to Regulation No. 19;
A front direction indicator lamp of category 1a approved in accordance with the 01 series of amendments to Regulation No. 6.

Figure 9

Lamp reciprocally incorporated with a headlamp

Example 1



The above example corresponds to the marking of a lens intended to be used in different types of headlamps, namely:

either: a headlamp with a passing beam designed for right-hand and left-hand traffic and a driving beam approved in the Federal Republic of Germany (E1) in accordance with the requirements of Regulation No. 5 as amended by the 02 series of amendments, which is reciprocally incorporated with a front position lamp approved in accordance with the 01 series of amendments to Regulation No. 7;

or: a headlamp with a passing beam designed for right-hand and left-hand traffic and a driving beam with a maximum intensity comprised between 86,250 and 101,250 candelas, approved in the Federal Republic of Germany (E1) in accordance with the requirements of Regulation No. 31 as amended by the 02 series of amendments which is reciprocally incorporated with the same front position lamp as above;

or even: either of the above-mentioned headlamps approved as a single lamp.

The main body of the headlamp shall bear the only valid approval number, for instance:

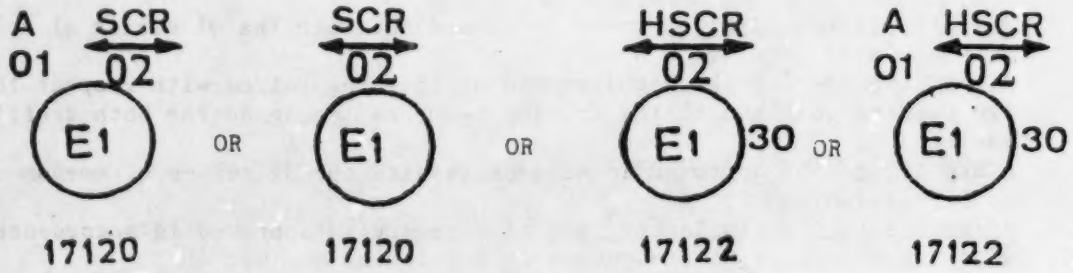
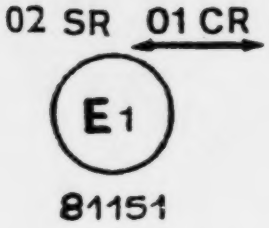


Figure 9

Example 2



The above example corresponds to the marking of a lens used in an assembly of two headlamps approved in the Federal Republic of Germany (E1), consisting of a headlamp emitting a passing beam designed for both traffic systems and of a driving beam meeting the requirements of Regulation No. 1, and of a headlamp emitting a driving beam meeting the requirements of Regulation No. 5.

Annex 5

TESTS FOR STABILITY OF PHOTOMETRIC PERFORMANCE OF HEADLAMPS IN OPERATION

Compliance with the requirements of this annex is not sufficient for the approval of headlamps incorporating lenses of plastic material.

TESTS ON COMPLETE HEADLAMPS

Once the photometric values have been measured according to the prescriptions of this Regulation, in points for E_{max} for driving beam and HV, 50 R, B 50 L for passing beam (or HV, 50L, B50R for headlamps designed for left-hand traffic) a complete headlamp sample shall be tested for stability of photometric performance in operation. "Complete headlamps" shall be understood to mean the complete lamp itself including those surrounding body parts and lamps which could influence its thermal dissipation.

1. TEST OF STABILITY OF PHOTOMETRIC PERFORMANCE

The tests shall be carried out in a dry and still atmosphere at an ambient temperature of 23° C ± 5° C, the complete headlamp being mounted on a base representing the correct installation on the vehicle.

1.1 Clean headlamp

The headlamp shall be operated for 12 hours as described in subparagraph 1.1.1. and checked as prescribed in subparagraph 1.1.2.

1.1.1 Test procedure

The headlamp shall be operated for a period according to the specified time, so that:

1.1.1.1

(a) in the case where only one lighting function (driving or passing beam) is to be approved, the corresponding filament is lit for the prescribed time, **/

(b) in the case of a reciprocally incorporated passing lamp and driving lamp (dual filament SB headlamp):

If the applicant declares that the headlamp is to be used with a single filament lit */ at a time, the test shall be carried out in accordance with this condition, activating **/ each specified function successively for half the time specified in paragraph 1.1.;

In all other cases */ **/ the headlamp, shall be subjected to the following cycle until the time specified is reached:

15 minutes, passing-beam filament lit
5 minutes, all filaments lit.

(c) in the case of grouped lighting functions all the individual functions shall be lit simultaneously for the time specified for individual lighting functions (a) also taking into account the use of reciprocally incorporated lighting functions (b), according to the manufacturer's specifications.

Note: */ Should two filaments be simultaneously lit when headlamp flashing is used, this shall not be considered as being normal use of both filaments simultaneously.

**/ When the tested headlamp is grouped and/or reciprocally incorporated with signalling lamps, the latter shall be lit for the duration of the test. In the case of a direction indicator lamp, it shall be lit in flashing operation mode with an on/off time ratio of approximately one to one.

1.1.1.2 Test voltage

The voltage shall be adjusted so as to supply a wattage 15% (26% for 24 V types) higher than the rated wattage specified in this Regulation for the type(s) of SB headlamp(s) concerned is (are) obtained.

1.1.2 Test results

1.1.2.1 Visual inspection

Once the headlamp has been stabilized to the ambient temperature, the headlamp lens and the external lens, if any, shall be cleaned with a clean, damp cotton cloth. It shall then be inspected visually; no distortion, deformation, cracking or change in colour of either the headlamp lens or the external lens, if any, shall be noticeable.

1.1.2.2 Photometric test

To comply with the requirements of this Regulation, the photometric values shall be verified in the following points:

Passing beam:

50R - B50L - HV for headlamps designed for right-hand traffic
50L - B50R - HV for headlamps designed for left-hand traffic

Driving beam:

Point of E_{max}

Another aiming may be carried out to allow for any deformation of the headlamp base due to heat (the change of the position of the cut-off line is covered in paragraph 2).

A 10% discrepancy between the photometric characteristics and the values measured prior to the test is permissible including the tolerances of the photometric procedure.

1.2 Dirty headlamp

After being tested as specified in subparagraph 1.1. above, the headlamp shall be operated for one hour as described in subparagraph 1.1.1., after being prepared as prescribed in subparagraph 1.2.1., and checked as prescribed in subparagraph 1.1.2.

1.2.1 Preparation of the headlamp

1.2.1.1 Test mixture

The mixture of water and a polluting agent to be applied to the headlamp shall be composed of nine parts (by weight) of silica sand with a grain size distributed between 0 and 100 µm, one part (by weight) of vegetal carbon dust of a grain size distributed between 0 and 100 µm, 0.2 part (by weight) of NaCMC and an appropriate quantity of distilled water, the conductivity of which is lower than 1 mS/m for the purpose of this test.

The mixture must not be more than 14 days old.

1.2.1.2 Application of the test mixture to the headlamp

The test mixture shall be uniformly applied to the entire light emitting surface of the headlamp and then left to dry. This procedure shall be repeated until the illumination value has dropped to 15-20% of the values measured for each following point under the conditions described in paragraph 1 above:

Point of E_{max} in driving beam, photometric distribution for a driving/passing lamp,

Point of E_{max} in driving beam, photometric distribution for a driving lamp only,

50R and 50V for a passing lamp only, designed for right-hand traffic,

50L and 50V for a passing lamp only, designed for left-hand traffic.

1.2.1.3 Measuring equipment

The measuring equipment shall be equivalent to that used during headlamp approval tests.

2. TEST FOR CHANGE IN VERTICAL POSITION OF THE CUT-OFF LINE UNDER THE INFLUENCE OF HEAT

This test consists of verifying that the vertical drift of the cut-off line under the influence of heat does not exceed a specified value for an operating passing lamp.

The headlamp tested in accordance with paragraph 1.1., shall be subjected to the test described in 2.1., without being removed from or readjusted in relation to its test fixture.

2.1 Test

The test shall be carried out in a dry and still atmosphere at an ambient temperature of 23° C ± 5° C.

Using a mass production SB headlamp which has been aged for at least one hour the headlamp shall be operated on passing beam without being dismounted from or readjusted in relation to its test fixture. (For the purpose of this test, the voltage shall be adjusted as specified in paragraph 1.1.1.2.) The position of the cut-off line in its horizontal part (between vv and the vertical line passing through point B50L for right-hand traffic or B50R for left-hand traffic) shall be verified 3 minutes (r_3) and 60 minutes (r_{60}) respectively after operation.

The measurement of the variation in the cut-off line position as described above shall be carried out by any method giving acceptable accuracy and reproducible results.

2.2 Test results

2.2.1 The result expressed in milliradians (mrad) shall be considered as acceptable when the absolute value $\triangle r_I = | r_3 - r_{60} |$ recorded on the headlamp is not more than 1.0 mrad ($\triangle r_I \leq 1.0$ mrad).

2.2.2 However, if this value is more than 1.0 mrad but not more than 1.5 mrad (1.0 mrad $\triangle r_I \leq 1.5$ mrad) a second headlamp shall be tested as described in 2.1 after being subjected three consecutive times to the cycle as described below, in order to stabilize the position of mechanical parts of the headlamp on a base representative of the correct installation on the vehicle:

Operation of the passing lamp for one hour, (the voltage shall be adjusted as specified in paragraph 1.1.1.2.),

Period of rest for one hour.

The headlamp type shall be considered as acceptable if the mean value of the absolute values Δr_I measured on the first sample and Δr_{II} measured on the second sample is not more than 1.0 mrad

$$\left(\frac{\Delta r_I + \Delta r_{II}}{2} \leq 1.0 \text{ mrad}\right)$$

3. CONFORMITY OF PRODUCTION

One of the sampled headlamps shall be tested according to the procedure described in paragraph 2.1. after being subjected three consecutive times to the cycle described in paragraph 2.2.2.

The headlamp shall be considered as acceptable if Δ r does not exceed 1.5 mrad.

If this value exceeds 1.5 mrad but is not more than 2.0 mrad, a second headlamp shall be subjected to the test after which the mean of the absolute values recorded on both samples shall not exceed 1.5 mrad.